OUTPATIENT PAIN REHABILITATION PROGRAMS

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ABSTRACT

Outpatient pain rehabilitation programs that include an interdisciplinary approach have been shown to be effective treatments for patients with chronic pain. The objectives of this article are to describe the common interdisciplinary pain rehabilitation programs available, the appropriate indications for use, the components of typical pain rehabilitation programs, the short-term and long-term success rates, the costs of attending these programs, and the significant societal costs of those patients who do not complete these programs and do not return to work.

HISTORY OF OUTPATIENT PAIN REHABILITATION PROGRAMS

The origins of the outpatient pain rehabilitation program date to the 1960s when Lidstrom, Zachrisson, and Forsell developed the "Swedish Back School." The goal of this back school was to reduce pain and prevent recurrence of low back pain. This program was a simple collection of four group sessions lasting only 45 minutes over 12 weeks' duration. Topics included biomechanics, ergonomics, exercises, and skill acquisition. The components of this program were supervised by either medical or paramedical professionals. In 1980, Mayer and Gatchel developed a more modern Functional Restoration Program. This program was more medically directed with an interdisciplinary approach to pain management geared toward patients with chronic disabling occupational musculoskeletal disorders. Much has been written about these programs. The Cochrane Database of Systematic Reviews evaluation of physical conditioning programs that include a cognitive-behavioral approach indicated there was moderate support for these programs being effective in the treatment of chronic back pain.

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WHY USE A PAIN REHABILITATION PROGRAM?

In acute pain syndromes, symptoms are generally associated with a well-defined organic cause. Whether these are bony, ligamentous, or neurological causes, these injuries can easily be identified on physical examination or with diagnostic imaging. Pain relief generally occurs following resolution of the acute injury. Pain rehabilitation programs are not effective in these cases. In contrast, the etiologies of chronic pain syndromes are not as well understood. Possible mechanisms range from persistent scar tissue around nerve roots, neuropathic pain, central spinal sensitization, improper balance of serotonin or norepinephrine receptors, to psychogenic causes. Psychological and social factors may be part of initiating chronic pain, or may arise secondary to chronic musculoskeletal conditions.

Single-modality treatments including physical therapy, medications, or chiropractic manipulation are rarely helpful in these chronic conditions. The inadequate understanding of the complexity of chronic pain often leads to both under-diagnosis and over-diagnosis. Multiple medical and surgical consultations result in substantial health care costs. The patient's fear and immobility can then lead to depression, loss of physical stamina, increased ill-health perception, and further fear of worsening pain.

THE CHRONIC PAIN REHABILITATION TEAM

The pain rehabilitation team consists of several health care providers. Most programs include physical and occupational therapists, psychologists, and nurses along with pain physicians. Other programs may also utilize medical social workers, vocational rehabilitation counselors, and recreational therapists. Physical therapists are essential to educate patients on improving biomechanics, posture, flexibility, strength, and conditioning. Occupational therapy improves a patient's ability to perform activities of daily living and home-making tasks. Occupational therapists can also create an environment that may simulate a worker's job duties. The ability for a patient to bridge work and recreational activities should also be addressed by a physical therapist, an occupational therapist, recreational therapist, vocational counselor or even a medical social worker.

Perhaps the most important team member is the health psychologist. He or she often employs cognitive behavioral therapy to help rehabilitate the patient. Cogni-

tive behavioral therapy includes structured techniques to help patients identify and change maladaptive thoughts and behaviors, or catastrophization. Acquisition of these skills is essential to allow patients to combat their problems independently. The methods psychologists employ to teach patients these skills include operant conditioning, assertiveness training, stress management, relaxation training, goal setting, pacing, positive coping strategies, and moderation in activities. The goals of cognitive behavior therapy include improved sense of mood and control, reduced patient interference with physical and social activities, enhanced self-reliance, and reduced inappropriate health care service utilization.

Other important team members include a medical social worker to evaluate community resources and provide appropriate resource assistance. Rehabilitation nursing can provide medication management, education, and nurse case management services. Vocational rehabilitation specialists are able to assist and explore vocational training options. The physician may provide a leadership role in coordinating the team's activities and educating patients, but is generally better suited to play as small a role as possible after diagnosis. By having a patient first utilize their own knowledge of their chronic pain and coping mechanisms, patients learn more self-reliance. In addition, using non-physician team members to briefly evaluate any persistent complaints can distance patients from reliance upon physicians to treat each and every flare-up of chronic pain. Typically, medical directors are physical medicine and rehabilitation physicians, psychiatrists, anesthesia pain physicians, or orthopaedic surgeons with an interest in pain management.

HOW IS CARE DELIVERED?

All patients enrolled in an outpatient pain rehabilitation program should receive an individual treatment plan even if therapies are delivered in a group setting. Some inpatient pain rehabilitation programs are used solely for detoxification from opiate medications, which can occur within one to two weeks. Typical outpatient pain rehabilitation programs last for two to 12 weeks or longer. These sessions may include half-days, daily sessions, weekly sessions, and/or monthly sessions. Contact hours range from three to 280 hours for such programs. Guzman reported that programs with over 100 hours of professional contact tended to have better outcomes than those with less than 30 hours of contact.

Therapies can be delivered in individual or group settings. Turner-Stokes showed either individual therapy or group therapy to be effective delivery mechanisms for cognitive behavioral therapy. Group therapy sessions may allow additional peer group support and encouragement. Group therapy also helps participants understand that many others are experiencing the same problems with pain, activities of daily living, work interference, and recreational interference. In addition, Turner-Stokes concluded that members of the health care team working together can help maintain staff morale, as a lone psychologist or physician may feel isolated and frustrated when treating these complex chronic pain patients. Use of multidisciplinary teams in the treatment of chronic diseases such as diabetes and obesity is emerging and can be modeled from chronic back pain programs.

DO OUTPATIENT PAIN REHABILITATION PROGRAMS WORK?

Large meta-analyses indicate that outpatient pain rehabilitation programs offer clear benefits over conventional pain management in terms of mood, disability, interference with activities, pain behavior, reduction of pain intensity, decreased inappropriate use of health care, and return to work. A recent study in the Cochrane Database of Systematic Reviews by Heymans examined the use of back schools for non-specific low back pain.[4] They reviewed a total of 19 randomized controlled trials consisting of 3584 patients and concluded that "There is moderate evidence suggesting that back schools, in an occupational setting, reduce pain, improve function and return to work status, in the short and intermediate term, compared to exercises, manipulation, myofascial therapy, advice, placebo, or waiting list controls, for patients with chronic, recurrent low back pain." There is also evidence that multidisciplinary treatments reduce symptoms, pain intensity, medication and health care provider use, and improve quality of life.[5] Van Tulder noted improvements not only in physical parameters such as range of motion and flexibility but also in behavioral health parameters including anxiety, depression, and cognition.

SUMMARY OF SHORT-TERM BENEFITS

Short-term benefits of multidisciplinary pain treatment programs include pain reduction as well as improved flexibility, trunk strength, tolerance, self-perceived health status, pain related disability, and mood. Shirado also used a back school approach to treat 182 patients with chronic low back pain (LBP). Patients rated their pain on a 1-10 point scale as a 6.2 on average before the program, which decreased to an average of 2.8 after the program. Pain improved in 141 patients (81 percent), did not change in 27 (15 percent), and worsened in seven (four percent). Statistically significant improvements were achieved in finger-floor distance, trunk muscle strength, and endurance. Compliance with an exercise program significantly correlated with clinical results. Lemstra conducted a randomized controlled trial of 79 patients with fibromyalgia. Thirty-five patients completed

the intervention arm, and 36 control patients completed the no-treatment arm of the study. The intervention group had significant improvement in self-perceived health status, pain intensity, pain-related disability, depressed mood, and days and hours in pain. However, they had no change in nonprescription or prescription medication use or work status.

EFFECTS OF OUTPATIENT PAIN REHABILITATION PROGRAMS ON RETURN TO WORK

As a part of the Cochrane Database of Systematic Reviews, in 2002 Schonstein et al. reviewed 18 randomized controlled trials on work conditioning, work hardening, and functional restoration for workers with back and neck pain. They reviewed all randomized controlled trials that focused exclusively on injured workers, intended work outcomes, and availability of modified duties. The authors concluded that "Physical conditioning programs that include a cognitive behavioral approach can reduce the number of sick days lost at 12 month follow-up by an average of 45 days (95 percent confidence interval from -3 days to -88 days) when compared to general practitioner usual care or advice, for workers with chronic back pain." All of these studies included subjects with a capacity to return to pre-injury jobs with their pre-injury employer.

EXERCISE AND WORK

Taimela et al. studied 125 patients who had participated in a 12-week low back rehabilitation program and asked about pain and disability 14 months following treatment. They concluded that recurrences were fewer among those who maintained regular exercise habits after treatment. Work absenteeism was less among those who were physically active. Exercises are beneficial after treatment, but those with less favorable outcomes are also less likely to participate in exercise after treatment.

LONG-TERM SUCCESS OF OUTPATIENT PAIN REHABILITATION PROGRAMS

Patrick performed a 13-year follow-up study of 26 patients who had completed a chronic pain rehabilitation program at the University of Iowa Spine Center. The authors found that patients had maintained their treatment gains of decrease in pain intensity, decrease in pain interference, and improved mood. The patients had general health levels comparable to similar age-matched peers except for more pain and lower physical functioning. More than half of the sample was employed. Of those not employed, few reported that their unemployment was due to pain.

OTHER BENEFITS

Linton studied 185 patients with back or neck pain at risk for developing long-term disability who volunteered to participate.[8] One hundred and fifty-eight patients completed a study in which each patient was randomized to one of three treatment arms. Those patients who completed a cognitive behavioral group program either with or without a physical therapy intervention had fewer health care visits and fewer days of sick leave than those who completed minimal treatment.

PROGRAM COSTS

Program costs vary throughout the country. Typically these costs depend on the length of the program and the program intensity. Usual charges include some physical therapy, psychology, and physician charges. These costs range from $13,000 to $30,000.

Reimbursement by third party payors for participation in these programs is varied. For those patients whose chronic pain is causally related to a specific work injury, workers compensation typically will pay for this treatment. Convincing third party payer administrators of the short-term and long-term benefits of a comprehensive pain rehabilitation program can be challenging, but medical directors can cite recent research studies on chronic pain rehabilitation programs as noted above. For those chronic pain patients who are working-age adults and have not attained eligibility for Medicare, their commercial insurance company typically pays for these programs based on how their contract pays for other physical therapy and/or psychotherapy charges.

Much of the challenge in chronic pain lies with patients who do not have insurance. These patients typically are not employed by large companies offering group health insurance coverage. If they are self employed and unable to work, they usually have no other source of income. When chronic pain patients are eligible for government health care benefits such as Medicaid, the reimbursement to a pain rehabilitation program can be significantly lower than that of other payors. Each state's Medicaid coverage differs in their management of physical therapy, psychotherapy, and physician reimbursement. However, those patients who are uninsured and unemployed because of their chronic pain are those patients who need these programs most desperately. Uninsured and unemployed patients create significant cost to society because of lost productivity and excessive unnecessary medical costs associated with diagnosing and treating chronic musculoskeletal pain.

TABLE 1
Comparison of Program Completers and Noncompleters

Utilization of:	Program Completers	Program Noncompleters
Surgery	2.3%	12.2%
New physician visits	20.8%	40.7%
>31 visits	3.4%	19.1%

From Proctor et al., *Arch of PM&R* 2005 86; 1509-15.

COSTS OF NOT ATTENDING

Proctor et al. tried to study the health care costs of those patients who failed to complete a pain rehabilitation program. He studied a large prospective cohort of 1137 patients who completed a multidisciplinary pain rehabilitation program and compared that group with a cohort of 303 program noncompleters. Researchers used a structured telephone interview of post-treatment outcomes performed one year after the program. The non-completers had more medical comorbidities including diabetes, cardiovascular conditions, hypertension, GI problems, cancer, and asthma. However, the work status of completers indicated that 90.4 percent of completers were able to return to work compared to only 48.7 percent of noncompleters. In addition, 84 percent of completers continued to work after one year compared to only 41 percent of noncompleters. Thirty-seven percent of treated patients returned to the same employer versus 16 percent of the noncompleters. Thirty-four percent of the completers even returned to their same pre-injury job compared to 18 percent of noncompleters. Other significant findings indicate that noncompleters had significantly increased health care utilization compared to completers. Noncompleters were seven times more likely to have had surgery in the same area. Noncompleters were also seven times more likely to have more than 31 additional health care visits in the next year(Table 1). Noncompleters were seven times less likely to have returned to work at the end of the year and 9.7 times less likely to have returned to any type of work. The authors concluded that, "Noncompleters had poor socioeconomic outcomes in the year after discharge from treatment especially on work status and health utilization outcomes. These outcomes are of great relevance to societal, medical and indemnity costs and to future worker productivity."

PREDICTORS OF A GOOD OUTCOME

The goal of the medical director of a pain rehabilitation program is to predict those patients who are most likely to improve with the least amount of cost. However, it can be difficult to predict who will respond to a comprehensive pain rehabilitation program and who will not. Van der Hulst reviewed published studies that were mainly descriptive or exploratory in nature. Consistent evidence was found for the predictive value of pain intensity, as a higher pain intensity correlated with a worse outcome. Several work-related parameters including high satisfaction with work and coping style (more active coping better than passive) correlated with better outcomes. Bendix, at the Copenhagen Back Center Functional Restoration Center, compared 816 patients treated in a functional restoration program with 144 patients who completed a shorter outpatient program and 51 patients who had no treatment. He found that younger age, fewer days of sick leave, connection to the work force, and decreased back pain intensity were significantly correlated with a better outcome at one year after entry into the study in all groups. Back muscle endurance, sports activity, activities of daily living scores, and vibrations were of importance in some outcome parameters after functional restoration. Smoking also positively correlated with disability pension.

CONCLUSION

Physicians need to be aware that outpatient pain rehabilitation programs are clinically effective and cost effective. Approaches to utilizing interdisciplinary teams to assist patients with chronic pain conditions can be helpful to the physician as well the entire health care team. Although the initial cost for a patient to participate in a pain rehabilitation program may be high, the cost to society of not attending such a program through lost productivity and excessive health care utilization is likely significant.

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